What is claimed is:

1. An apparatus for scanning a sample surface of a sample in a non-contact mode, comprising:

a sensing means for sensing the sample surface based on an amplitude variation in a resonant frequency of the sensing means by keeping a uniform distance from the sample surface which is moving in one plane;

a frequency transforming means for transforming a signal sensed by the sensing means to a first signal having a frequency;

a frequency combining means for combining the first signal and a second signal outputted from a frequency generator to generate a combined signal, wherein a frequency of the second signal is identical to the resonant frequency and said second signal frequency is a higher frequency than the frequency of the first signal; and

an actuating means for actuating the sensing means in response to the first signal and providing the combined signal to the sensing means to selectively actuate the sensing means at the second signal frequency.

2. The apparatus as recited in claim 1, wherein the sensing means measures amplitude variation of the resonant frequency which is proportional to a displacement of a gap in the sample surface, while the sensing means is maintained at a

uniform distance from the sample surface through the use of the actuating means which is driven in a direction perpendicular to the sample surface in response to the first signal.

3. The apparatus as recited in claim 1, wherein the actuating means functions as a low pass filter by responding to the first signal.

4. The apparatus as recited in claim 1, wherein the sensing means includes:

a cantilever which is attached to the actuating means;

a tip which is mounted at a distal end of the cantilever for tracking the sample surface; and

a sensing unit which is attached to a predetermined area of the cantilever for sensing the sample surface.

5. The apparatus as recited in claim 4, wherein the tip has a probe and is used as an atomic force microscope.

6. The apparatus in recited as claim 4, wherein the tip has an aperture and is used as a near field scanning optical microscope.

7. The apparatus as recited in claim 1, wherein the sample is moving in an X and Y direction by an X-Y scanner disposed under the sample.

8. The apparatus as recited in claim 1, wherein the actuating means is one of a piezo actuator, a bimorph actuator, and a voice coil motor.

9. A method for scanning a sample surface of a sample comprising the steps of:

sensing the sample surface based on an amplitude variation of a resonant frequency by keeping a uniform distance from the sample which is moving in one plane;

transforming the sensed signal to a first signal having a frequency;

combining the first signal and a second signal to generate a combined signal, wherein a frequency of the second signal is identical to the resonant frequency and said second signal frequency is a higher frequency than the frequency of the first signal; and

performing the sensing step in response to the first signal and using the combined signal to selectively perform the sensing step selectively at the second signal frequency.